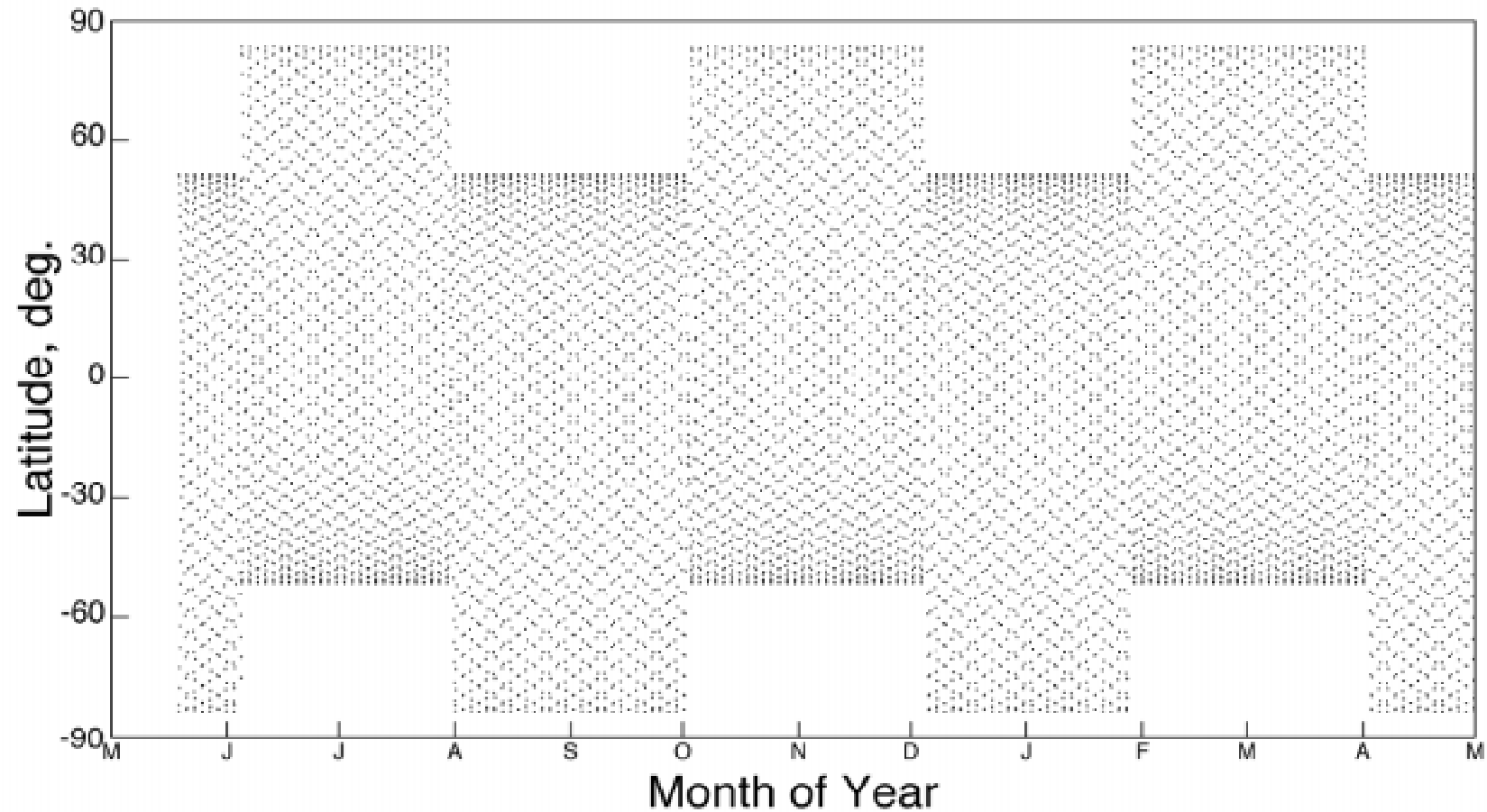
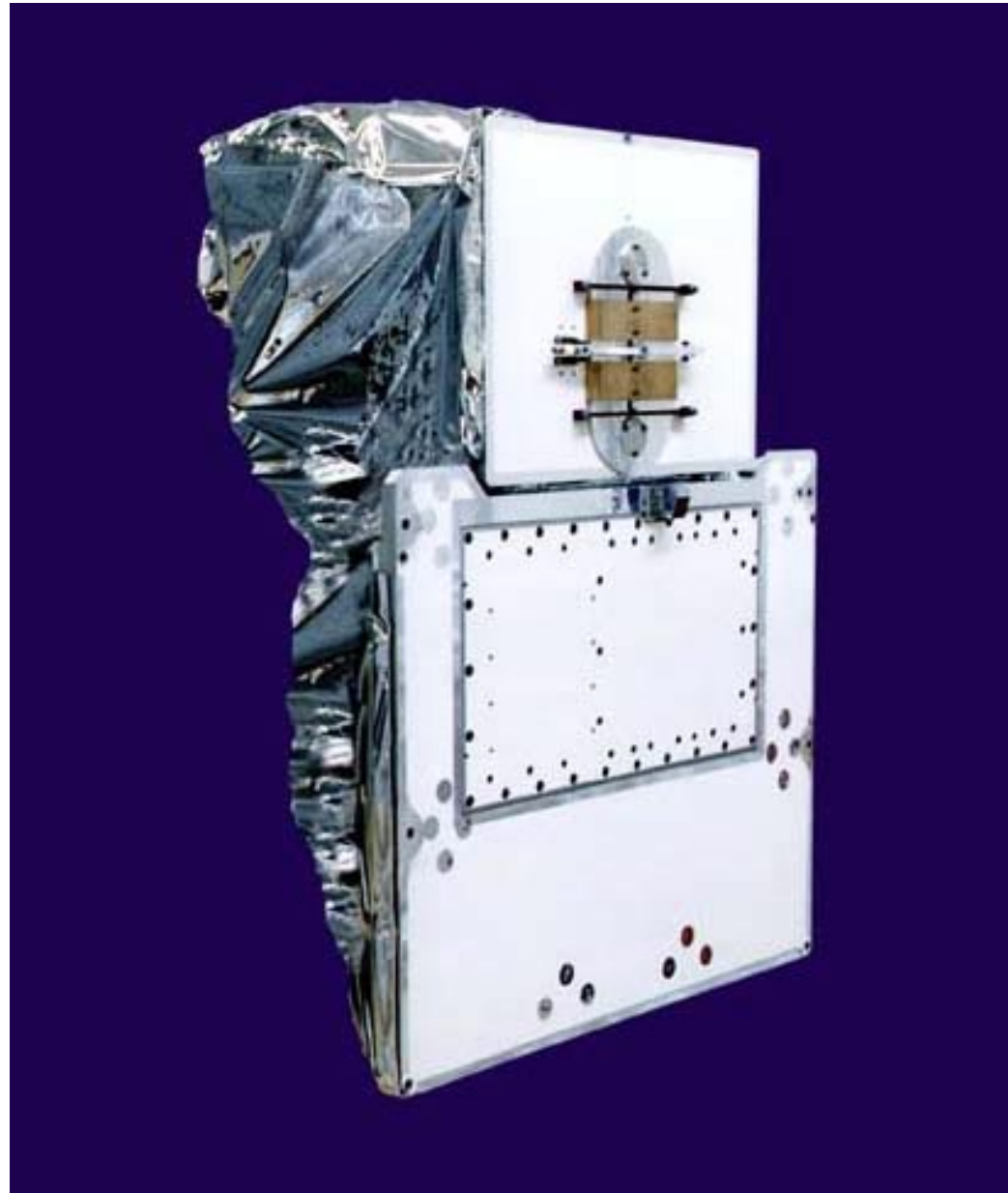


SABER latitude coverage versus time of year
May 18, 2000 launch, 74.06 degree, 4:22 PM crossing.





SABER Instrument with Contamination Door Attached

SABER Instrument Performance Assessment

- **Engineering tests and calibration show excellent off-axis rejection, excellent end-to-end linearity, and a well characterized temporal response.**
- **The IFOV at the Earth horizon is within or at specification in all channels**
- **The relative spectral response is within specifications in all channels and out-of-band rejection is within specifications in all but two channels. Response is known and will be included in the retrieval**
- **Noise equivalent radiance is within specifications in all but the long λ CO₂ channels (1.3 to 1.5 times) and from 2 to 15 times better in all others.**
- **Combined retrievals using all three CO₂ channels will place these channels within specifications**

SABER Level 1B Calibrated, Spacecraft Motion Corrected Radiances

- Tangent altitude radiance versus pressure for:

-	CO₂(v2)W	15 μm
-	CO₂(v2)N	15 μm
-	O₃(v3)	9.6 μm
-	O₂(¹Δ)	1.27 μm
-	CO₂(v3)	4.3 μm
-	H₂O(v2)	6.9 μm
-	OH(v=3,4,5)	1.6 μm
-	OH(v=7,8,9)	2.06 μm
-	NO(v)	5.3 μm

SABER Level 2A Routine Data Products

- **Vertical profiles of the following parameters:**

- Kinetic T, P, density	10 - 105 km	day and night
- Altitude	10 - 200 km	day and night
- O ₃ mixing ratio (9.6 μm)	15 - 100 km	day and night
- O ₃ mixing ratio (1.27 μm)	50 - 95 km	day
- H ₂ O mixing ratio	15 - 80 km	day and night
- CO ₂ (4.3 μm) density	85 – 150 km	day
- NO 5.3 μm VER [*]	100 - 180 km	day and night
- OH 1.6 μm VER [*]	80 - 100 km	day and night
- OH 2.0 μm VER [*]	80 - 100 km	day and night
- O ₂ (¹ Δ) 1.27 μm VER [*]	50 - 105 km	day and night

^{*} **Volume Emission Rate**

SABER Level 3 Data Products

- **Zonal mean pressure versus latitude cross sections for all parameters**
 - **Daily, weekly, monthly, and seasonally averaged**
- **Polar stereographic maps on constant pressure and isentropic surfaces**
 - **Daily maps, weekly, monthly, and seasonally averaged maps**

Activity	Science Team Responsibility	GATS, Inc. Assistance
Level 0	Gordley	Yunfei Wang
Level 1 CO ₂ (15 μm) O ₃ (9.6 μm) H ₂ O (6.9 μm) NO (5.3 μm) CO ₂ (4.3 μm) OH (2.0 μm) OH (1.6 μm) O ₂ (¹ Δ) (1.27 μm)	Puertas Wintersteiner Eden Mertens Picard Winick Baker Mlynczak	
Level 2A T _k (P) ρ, Z O ₃ (9.6 μm) O ₃ (1.27 μm) H ₂ O CO ₂ NO VER OH 1.6 μm VER OH 2.0 μm VER O ₂ (¹ Δ) 1.27 μm VER	Gordley, Mlynczak Picard Remsberg, Russell, Siskind Mlynczak Russell, Remsberg, Siskind Winick Gordley Espy, Ulwick Ulwick, Espy Baker	
Level 2B T _k (P), ρ [O], [H] Geostrophic wind Cooling rates, Solar and Chemical heating rates	Gordley, Mlynczak Baker, Espy, Ulwick Garcia Mlynczak	
Level 3	Garcia, Roble, Solomon	

Potential SABER Ground-based Collaborations

- **“Direct” [O] and [H] measurements (e.g. using resonance lamp) in the 80 - 100 km altitude range would significantly augment energetics and chemistry investigations**
- **Correlative Lidar temperature measurements in the 50 - 100 km range for validation studies**
- **Correlative rocket measurements of O_3 , $O_2(^1\Delta)$, $OH(v)$, NO , and $NO(v)$ for validation studies**
- **Hydroxyl rotational temperatures for validation in the 80 - 100 km range**
- **Ground-based microwave measurements of H_2O , O_3 , and NO for validation studies**
- **Ground-based zenith column emission due to $O_2(^1\Delta)$ and SABER OH bands for comparison to SABER calculated values from volume emission rate data (absolute calibration of ground-based instruments essential)**
- **Lidar heat flux measurements to complement SABER solar and chemical heating and infrared cooling determinations**